

WHAT IS CLAIMED IS:

1. A power converting apparatus having a non-insulated converter and a non-insulated inverter to convert direct current power inputted from a power supply to alternating current power and to supply the alternating current power to a commercial power system which is grounded, said apparatus comprising:

a detector for detecting a ground fault of the supply; and

- 10 a controller for varying an input voltage of the converter and/or an intermediate voltage between the converter and the inverter so as to control a potential to ground of the power supply.

2. The apparatus according to claim 1, wherein said controller executes the control to make a magnitude of the potential to ground at an arbitrary position in the power supply have a value not less than a predetermined value.

3. The apparatus according to claim 1, wherein when the ground fault is detected by said detector, said controller records information related to the ground fault in a memory.

4. The apparatus according to claim 3, wherein the information recorded in the memory includes at least the input voltage or intermediate voltage at the time of ground fault detection.

5. The apparatus according to claim 1, wherein said

detector detects the ground fault at least at two detection levels, and when the ground fault is detected, said controller records information related to the ground fault in a memory for each detection level.

5 6. The apparatus according to claim 5, wherein the information recorded in the memory includes at least the input voltage or intermediate voltage at the time of ground fault detection.

7. The apparatus according to claim 5, wherein when
10 the ground fault is detected, said controller predicts a ground fault position and/or a ground fault resistance value on the basis of the input voltage and intermediate voltage for each detection level and records a prediction result in the memory.

15 8. The apparatus according to claim 1, wherein said detector detects the ground fault at least at two detection levels, and upon detecting the ground fault, outputs a ground current value, and when the ground fault is detected, said controller records information
20 related to the ground fault in a memory for each detection level.

9. The apparatus according to claim 8, wherein the information recorded in the memory includes at least the input voltage, intermediate voltage, and ground
25 current value at the time of ground fault detection.

10. The apparatus according to claim 8, wherein when the ground fault is detected, said controller

calculates a ground fault position and/or a ground
fault resistance value on the basis of the input
voltage, intermediate voltage, and ground current value
for each detection level and records a calculation
5 result in the memory.

11. The apparatus according to claim 1, wherein said
controller executes the control within a predetermined
time T1.

12. The apparatus according to claim 11, wherein
10 after the control is executed, said controller does not
execute the control until a predetermined time T2
shorter than the predetermined time T1 has elapsed.

13. The apparatus according to claim 1, wherein said
controller executes the control when the direct current
15 power input from the power supply has a value not more
than a predetermined value.

14. The apparatus according to claim 1, wherein when
the ground fault is detected, said controller stops
power supply to the commercial power system, resumes
20 power supply after a predetermined time, and executes
the control to confirm whether a ground fault is
detected once or a plurality of number of times.

15. The apparatus according to claim 1, wherein said
power supply comprises a plurality of direct current
25 power supply units connected in series.

16. The apparatus according to claim 1, wherein said
power supply is a solar battery.

17. A solar power generation apparatus comprising:
a power supply for supplying direct current
power; and

the power converting apparatus of claim 1.

5 18. The apparatus according to claim 17, wherein said
power supply comprises a plurality of direct current
power supply units connected in series.

19. The apparatus according to claim 17, wherein said
power supply is a solar battery.

10 20. A control method of a power converting apparatus
which has a non-insulated converter and a non-insulated
inverter to convert direct current power inputted from
a power supply to alternating current power and to
supply the alternating current power to a commercial
15 power system which is grounded, said method comprising
the steps of:

varying an input voltage of the converter and/or
an intermediate voltage between the converter and the
inverter so as to control a potential to ground of the
20 power supply; and

detecting a ground fault of the power supply.

21. A computer program product comprising a computer
readable medium having a computer program code, for a
control method of a power converting apparatus which
25 has a non-insulated converter and a non-insulated
inverter to convert direct current power inputted from
a power supply to alternating current power and to

supply the alternating current power to a commercial power system which is grounded, comprising process procedure code for:

- 5 varying an input voltage of the converter and/or an intermediate voltage between the converter and the inverter so as to control a potential to ground of the power supply; and

detecting a ground fault of the power supply.